CLAIMS

What is Claimed is:

1. A telecommunications power system comprising:

a battery connection module that is connected to a plurality of batteries;

a load;

a rectifier module that is connected to said load, said battery connection module and an alternating current (AC) source;

a contactor that connects said batteries to said load; and

a controller that is connected to said contactor, said battery connection module and said rectifier module, wherein said controller opens said contactor when a voltage of said battery falls below a low voltage disconnect threshold and closes said contactor after said AC source returns while minimizing voltage transients and current surge during reconnection.

2. The telecommunications power system of claim 1 wherein before said contactor is closed, said controller lowers a voltage of said rectifier module to said voltage of said battery connection module.

3. The telecommunications power system of claim 2 wherein after said contactor is closed, said controller gradually increases said voltage of said rectifier module to a float voltage of said batteries as said batteries recharge.

4. The telecommunications power system of claim 3 wherein said loads are connected by a distribution module to a power bus.

5. The telecommunications power system of claim 4 wherein said rectifier module includes a first analog to digital (A/D) converter and a first neuron

that generates and transmits a rectifier voltage signal to said controller.

6. The telecommunications power system of claim 5 wherein said battery connection module includes a second analog to digital (A/D) converter and a second neuron that generates and transmits a battery voltage signal to said controller.

7. The telecommunications power system of claim 6 wherein said battery connection module senses a contactor voltage across said contactor.

8. The telecommunications power system of claim 7 wherein said second neuron transmits a contactor voltage signal based on said contactor voltage to said controller.

9. The telecommunications power system of claim 8 wherein said controller is connected by a communications bus that employs a serial communications protocol to said first and second neurons.

10. The telecommunications power system of claim 9 wherein said communications bus employs a CAN protocol.

11. A method for providing power to a load in a telecommunication system that includes a battery subsystem with a plurality of batteries, a load, a rectifier module connected to said load, and a contactor that connects said batteries to said load, comprising the steps of:

monitoring voltage that is output by said batteries with a controller;

disconnecting said batteries from said load using said controller when said voltage output by said batteries falls below a low voltage disconnect threshold; and

minimizing voltage transients and current surge when reconnecting said batteries to said load using said controller.

12. The method of claim 11 further comprising the step of:

gradually lowering a voltage of said rectifier module to said voltage of said batteries before reconnecting said batteries to said load using said controller.

13. The method of claim 12 further comprising the step of:

gradually increasing said voltage of said rectifier module to said float voltage after said batteries are reconnected to said load using said controller.

14. A telecommunications power system comprising:

a power bus;

a battery module;

a contactor that connects said battery module to said power bus;

a distribution module that is connected to said power bus;

a plurality of loads connected by said distribution module to said power bus;

a plurality of rectifier modules that are connected to said power bus and to a plurality of alternating current (AC) power sources; and

a controller that disconnects said battery module using said contactor when a voltage of said battery module falls below a low voltage disconnect when said rectifier modules fail to provide power, wherein said controller minimizes current surge and high voltage transients when said rectifier modules begin to provide power and said controller reconnects said battery module to said load.

15. The telecommunications power system of claim 14 wherein said controller lowers a voltage of said rectifier modules to said voltage of said battery module before said contactor reconnects the battery module.

16. The telecommunications power system of claim 15 wherein said controller gradually increases said voltage of said rectifier modules to said float voltage after said contactor is reconnected to said battery module while charging said battery module.

17. The telecommunications power system of claim 16 wherein said controller is connected to a communications bus.

18. The telecommunications power system of claim 17 wherein said rectifier modules include a first analog to digital (A/D) converter and a first neuron that is connected to said communications bus and that generates and transmits a rectifier voltage signal to said master controller.

19. The telecommunications power system of claim 18 wherein said battery module includes a second analog to digital (A/D) converter and a second neuron that is connected to said communications bus and that generates and transmits a battery module voltage signal to said controller.

20. The telecommunications power system of claim 19 wherein said second A/D converter and said second neuron sense a contactor voltage and transmit a contactor voltage signal to said controller.